

NEW THYSANOPTERA FROM THE UNITED STATES*

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The types of the new species described in this paper are in the author's collection.

Æolothrips vehemens new species. (Pl. XIII, Fig. 2.)

Female (macropterous).—Length about 1.6 mm. Color dark blackish brown (nearly black) with red subhypodermal pigmentation in thorax and abdomen; tarsi little, if any, paler than remainder of legs; antennæ dark blackish brown, with apex of segment 2 and all of 3 except tip, pale grayish yellow; *fore wings white in basal fourth* (except for a slight brownish cloud at extreme base) and at tip, and with a white transverse band just beyond middle, the remainder of wing dark brown.

Head broad, about 0.8 as long as greatest width, somewhat narrower across posterior portion of eyes than at base, equal in length to median line of pronotum, with faint anastomosing lines at sides and posteriorly, and with the usual minute bristles; anterior border not deeply emarginate by a forward prolongation of the eyes and without median tubercle, but evenly declivous and somewhat rugose transversely; cheeks very full, decidedly arched. Eyes about 0.44 as long as head, ventral portion prolonged posteriorly, that of left eye no farther from posterior margin of head capsule than width of third segment of antenna. Ocelli of posterior pair farther apart than their distance from anterior ocellus. *Antennæ about 2.5 times as long as head and only twice as long as its width; segment 5 about four times as long as segment 6, the sense cone on its ventral surface attached at its base only, the pale spot thus formed nearly circular.* Maxillary palpi three-segmented; labial palpi four-segmented.

Prothorax along median line of pronotum about 0.75 as long as greatest width, about 1.1 times as broad as head, not widened posteriorly. Pterothorax nearly 1.4 times as broad as prothorax, of the usual form; mesoseutum with the usual transverse anastomosing lines and the metascutum with the usual subreticulation. *Wings of fore pair long and broad, about 6.4 times as long as width at middle; venation normal.*

Abdomen of normal structure; tergite 1 not closely transversely striate.

Measurements of paratype (♀): Length 1.62 mm.; head, length 0.172 mm., greatest width 0.214 mm., least width (at posterior angles of eyes)

* Contribution from the Entomological Laboratories of Cornell University.

0.194 mm.; eyes, length 0.076 mm., width 0.055 mm., interval 0.084 mm.; prothorax, length 0.173 mm., width across coxæ 0.230 mm.; pterothorax, width 0.315 mm.; fore wings, length 1.15 mm., width just beyond middle 0.180 mm.; abdomen, width 0.405 mm.; segment 9, length 0.142 mm., segment 10, length 0.104 mm.

Antennal segments:	1	2	3	4	5	6	7	8	9
Length (μ)	32	64	116	86	76	19	18	17	11
Width (μ)	40	32	28	28	28	22	18	14	7

Total length of antenna 0.44 mm.

Described from 2 females taken by Alexander Wetmore in the Chusca Mountains, New Mexico, July 1, 1918, on *Populus aurea* [Hood, No. 397].

This is another member of the *fasciatus* group and is closest, it would seem, to the species described below as *wetmorei*. The italicized characters should serve to distinguish it.

Æolothrips wetmorei new species. (Pl. XIII, Fig. 1.)

Female (macropterous).—Length about 1.5 mm. Color dark blackish brown (nearly black) with red subhypodermal pigmentation in thorax and abdomen; tarsi brown; antennæ with apex of segment 2 and all of 3 except tip, pale greyish yellow, remainder of antenna dark blackish brown; *fore wings white in basal third* (except for a slight brownish cloud at extreme base) and at tip, and with a white transverse band just beyond middle, the remainder of wing dark brown.

Head about 0.94 as long as wide, about as wide across eyes as at base, slightly shorter than median length of pronotum, faintly transversely striate with anastomosing lines (particularly on cheeks) and with the usual minute bristles; anterior border not deeply emarginate by a forward prolongation of the eyes and without median tubercle but evenly declivous and somewhat rugose transversely; cheeks only slightly arched. Eyes about 0.45 as long as head, ventral portion prolonged posteriorly, that of left eye no farther from posterior margin of head capsule than width of third segment of antenna. Ocelli of posterior pair farther apart than their distance from anterior ocellus. *Antennæ only 2.15 times as long as head and only twice as long as its width; segment 5 about 2.7 times as long as segment 6, the sense cone on its ventral surface attached at its base only, the pale spot thus formed nearly circular.* Maxillary palpi three-segmented; labial palpi four-segmented.

Prothorax along median line of pronotum about 0.8 as long as greatest width, 1.2 times as broad as head, not widened posteriorly. Pterothorax nearly 1.4 times as broad as prothorax, of the usual form; mesoscutum with the usual transverse anastomosing lines and metascutum with the usual subreticulation. Wings of fore pair hardly seven times as long as width at middle; venation normal.

Abdomen of normal structure; tergite 1 not closely transversely striate.

Measurements of holotype (♀): Length 1.49 mm.; head, length 0.170 mm., greatest width 0.180 mm., width across eyes 0.173 mm.; eyes, length 0.076 mm., width 0.047 mm., interval 0.078 mm.; prothorax, length 0.177 mm., width (inclusive of coxæ) 0.215 mm.; pterothorax, width 0.297 mm.; fore wings, length 0.825 mm., width at middle 0.120 mm.; abdomen, width 0.375 mm.; segment 8, length 0.090 mm.; segment 9, length 0.144 mm.; segment 10, length 0.113 mm.

Antennal segments:	1	2	3	4	5	6	7	8	9
Length (μ)	32	56	92	72	52	19	16	14	12
Width (μ)	36	27	24	23	24	21	18	12	7

Total length of antenna 0.37 mm.

Male (macropterous).—Similar to female in color and structure, but much smaller; abdomen with claspers at tip, but lacking chitinous prolongations on tergites 4–6.

Described from 10 females and 1 male taken by Alexander Wetmore at Williams, Arizona, July 8, 1918, on various plants [Hood, No. 398].

In wing pattern and general structure, *wetmorei* is allied to *fasciatus*, *nasturtii*, and the new species described in this paper as *vehemens*; but the long head, short antennæ, and the proportionate lengths of antennal segments 5 and 6 (all of which characters are emphasized by italics in the description above) serve abundantly for its recognition.

The species is named for Dr. Alexander Wetmore, Assistant Secretary of the Smithsonian Institution, who has added many interesting species to the North American list of Thysanoptera.

***Æolothrips oculatus* new species.** (Pl. XIII, Fig. 3.)

Female (macropterous).—Length about 1.5 mm. Color blackish brown, with a decided reddish cast, due to an almost continuous layer of red sub-hypodermal pigmentation in the thorax, abdomen, and femora; tarsi pale, the fore pair in basal half and the tips of fore tibiæ lemon yellow; antennæ with segments 1 and 2 concolorous with head, apex of 2 paler; segments 3 and 4 grayish yellow, the former shading to brown at extreme apex and with pedicel brown, the latter with its brief pedicel likewise brown and shading to brown in apical half or three-fifths; 5–9 nearly uniform grayish brown; fore wings with a dark transverse band occupying the middle fifth, this band involving the ambient vein in front and widened posteriorly; distal two-fifths of wing darkened in a little less than posterior half, proximal two-fifths brown along ambient vein and in scale.

Head nearly 1.1 times as long as greatest width, nearly 1.5 times as long as pronotum along median line, surface almost without sculpture except at

sides, with the usual minute bristles on occiput and cheeks; anterior border not deeply emarginate by a forward prolongation of the eyes and without median tubercle, but somewhat depressed, evenly declivous, and somewhat rugose transversely; cheeks only slightly arched. Eyes about 0.4 as long as head, *ventral portion only slightly prolonged posteriorly, their posterior angles averaging about as far from labrum as width of eye. Ocelli nearly equidistant.* Antennæ about 1.9 times as long as head; *sense cone on ventral surface of segment 5 attached for half its length, the usual pale spot being thus transformed into a pale line.* Maxillary palpi three-segmented.

Prothorax along median line of pronotum about 0.64 as long as greatest width, relatively little broader than head, not widened posteriorly. Pterothorax more than 1.4 times as broad as prothorax, of the usual form; meso-seutum with transverse anastomosing lines, these not closely spaced; meta-seutum faintly subreticulate. Wings of fore pair a little more than seven times as long as width at middle; venation normal. Legs rather short.

Abdomen of normal structure; tergite 1 not closely transversely striate.

Measurements of holotype (♀): Length 1.53 mm.; head, length 0.202 mm., greatest width 0.186 mm., least width (at base) 0.174 mm.; eyes, length 0.083 mm., width 0.058 mm., interval 0.070 mm.; prothorax, length of pronotum 0.136 mm., width across coxæ 0.212 mm.; pterothorax, width 0.311 mm.; fore wings, length 0.810 mm., width at middle 0.114 mm.; abdomen, greatest width 0.414 mm.; length of segment 8, 0.100 mm., of segment 9, 0.156 mm., of segment 10, 0.104 mm.

Antennal segments:	1	2	3	4	5	6	7	8	9
Length (μ)	36	56	85	77	62	24	17	17	14
Width (μ)	37	29	24	25	25	21	17	12	7

Total length of antenna 0.39 mm.

Described from one female taken at Boulder, Colorado (Gregory Canon), June 21, 1924, in flowers of *Pinus scopulorum*, by L. O. Jackson.

This species may readily be known by the italicized characters in the above description. It is closest to *vittipennis*, *crassus*, *vittatus*, and *mexicanus*.

Chirothrips productus new species. (Pl. XIV, Fig. 3.)

Female (macropterous).—Length about 1.25 mm. Color dark brown, thorax tinged with orange subhypodermal pigmentation; tarsi, apex of fore tibia and of second antennal segment, and most of segment 3, yellowish; ocellar pigment red; fore wings brown, paler just beyond base, veins darkest; hind wings slightly darkened basally and along median line, remainder clear.

Head 1.0 to 1.18 times as long as wide and 0.6 to 0.67 as long as prothorax, somewhat broadest across eyes, occiput with about three anastomosing lines; cheeks straight and parallel, a little less than one-fifth as long

as head and about one-third as long as eyes (0.32 to 0.39); *head distinctly produced in front of eyes, the distance from anterior margin of eyes to base of antennæ about one-half the length of cheeks, and to front of head about 1.5 times the length of cheeks; front rather broad, the interval between antennæ about one-third the width of segment 1*; three to five pairs of minute bristles near base of antennæ, in addition to a somewhat longer and stronger pair situated *slightly* in front of anterior ocellus and close to eyes. Eyes 0.5 to 0.55 as long as head and about 0.64 as wide as their interval. Ocelli subequal, the posterior pair slightly more widely separated and opposite posterior margin of eyes. Antennæ about 1.8 times as long as head; segment 1 decidedly shorter than segment 2; the latter not shoe-shaped, wider than long, with outer angle distinctly produced, but without sense cone on extreme apex.

Prothorax about 1.2 times as wide as long, sides almost perfectly straight; pronotum with the usual scattered, minute bristles and with the anastomosing striæ rather heavy and prominent, more or less broken up into dark scallops; the two pairs of bristles at posterior angles moderately long, dark. Pterothorax nearly 1.2 times as wide as prothorax; mesoscutum with anastomosing striæ throughout or with a few at posterior margin broken up into scallops. Wings of fore pair about 15 times as long as width at middle, slightly curved; costa, anterior vein and posterior vein with about 18, 9, and 4 bristles, respectively.

Abdomen broader than pterothorax, with transverse anastomosing striæ above and below; tergites with posterior margins dentate, striæ on tergite 1 not broken up into scallops; chitinous line near base of tergite 2 not interrupted; *sternites 2-6 without rounded teeth across middle of posterior margin, but with one or more transverse rows of scallops in front of posterior margin, particularly on sternite 2, which has four or five such rows. Segment 10 about 1.4 times as long as basal width, noticeably slender and acute, divided above.*

Measurements, principally of paratype from Aurora, Colo. (♀): Length 1.25 mm.; head, length .122 mm., greatest width 0.110 mm., length in front of eyes 0.036 mm., length of cheeks 0.024 mm.; eyes, length 0.062 mm., width 0.036 mm., interval 0.056 mm.; prothorax, length 0.206 mm., width 0.252 mm.; pterothorax, width 0.288 mm.; fore wings, length 0.825 mm., width at middle 0.054 mm., near base 0.076 mm.; abdomen, width 0.300 mm.; segment 10, length 0.102 mm., width at base 0.072 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	24	32	32	31	48	36	10	12
Width (μ)	34	38	23	24	20	18	7	5

Total length of antenna 0.22 mm.

Described from 5 females, as listed below:

North Dakota: Devils Lake, May 4, 1916, on *Achillea lanulosa*, James Silver, Jr.; 1 ♀ (*holotype*) [Hood, No. 131].

Colorado: Aurora, June 22, 1918, sweepings, L. O. Jackson; 1 ♀ [Hood, No. 514].

Denver, June 21, 1918, sweepings, L. O. Jackson; 2 ♀ [Hood, No. 511].

Utah: Mouth of Bear River, June 6, 1915, sweepings, A. Wetmore; 1 ♀ [Hood, No. 13].

This is another member of the *manicatus* group. The italicized characters should serve for its recognition. The produced head, acute abdomen, and the structure of the abdominal sternites are quite distinctive.

Chirothrips simplex new species.* (Pl. XIV, Fig. 4.)

Female (macropterous).—Length about 1.2 mm. Color quite uniform dark blackish brown, thorax tinged with orange subhypodermal pigmentation; tarsi and third antennal segment usually yellowish; ocellar pigment maroon red; fore wings blackish brown, paler just beyond base, veins darkest; hind wings slightly darkened basally and along median line, remainder clear.

Head slightly longer than wide and 0.6 as long as prothorax, somewhat broadest across eyes, occiput with three or four anastomosing lines; cheeks straight and parallel, about one-fifth as long as head and slightly more than one-third as long as eyes; head very little, if at all, elongated between eyes and antennæ, the distance from anterior margin of eyes to front of head about equal to length of cheeks; front rather broad, *the interval between antennæ one-third the width of segment 1*; two pairs of minute bristles near base of antennæ, in addition to *a particularly long and prominent pair situated close to eyes and far in front of anterior ocellus*. Eyes about 0.6 as long as head and about 0.6 as wide as their interval. Ocelli subequal, the posterior pair slightly more widely separated and opposite posterior margin of eyes. Antennæ about 1.8 times as long as head, nearly uniform blackish brown, apex of 2 and all of 3 usually paler and yellowish, pedicel of latter nearly colorless; segment 1 decidedly narrow, shorter than segment 2, the latter as long as greatest width, with sides rounded and *outer apical angle not prolonged, broadly and evenly rounded instead*, without sense-cone on outer surface of apex; 3 about 1.3 times as long as greatest width, with slender pedicel; 4 and 5 longer than wide, very briefly pedicellate; 6 nearly twice as long as wide, broadest at basal two-fifths, sides rounded; 7 and 8 short, about equal in length, 8 about twice as long as wide.

Prothorax narrow, about 1.23 times as wide as long, sides almost perfectly straight; pronotum with a few scattered, minute bristles (about comparable with those near base of antennæ), and with *the anastomosing striae un-*

* It is not unlikely that this species is Priesner's *Chirothrips falsus* (Zool. Jahrb., Bd. 50, p. 312; March, 1925), but his brief description, unaccompanied by figures, makes accurate identification impossible.

usually heavy and prominent, more or less broken up into dark scallops; the two pairs of bristles at posterior angles short, stout, dark, and prominent. Pterothorax 1.2 times as wide as prothorax; mesoscutum with anastomosing striæ throughout or with a few at posterior margin broken up into scallops. Wings of fore pair about 18 times as long as width at middle, curved slightly throughout their length; costa, anterior vein, and posterior vein with about 15, 8, and 4 bristles, respectively.

Abdomen broader than pterothorax, with transverse anastomosing striæ above and below; tergites with posterior margins dentate, striæ on tergite 1 not broken up into scallops; chitinous line near base of tergite 2 not interrupted; sternites with striæ finer and more widely spaced, otherwise similar to those on tergites; *sternite 2 with rounded teeth on posterior margin*, the series sometimes interrupted and irregular between median pair of bristles, continuous elsewhere. Segment 10 about 1.2 times as long as basal width, pointed at apex, divided above.

Measurements of paratype (♀): Length 1.22 mm.; head, length 0.110 mm., width across eyes 0.105 mm., length in front of eyes 0.021 mm.; cheeks, length 0.023 mm.; eyes, length 0.064 mm., width 0.028 mm., interval 0.047 mm.; prothorax, length 0.183 mm., width 0.225 mm.; pterothorax, width 0.270 mm.; fore wings, length 0.855 mm., width just beyond scale 0.085 mm., at middle 0.047 mm.; abdomen, width 0.300 mm.; segment 10, length 0.093 mm., width at base 0.078 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	20	30	30	30	24	35	9	10
Width (μ)	29	29	23	25	22	18	6	5

Total length of antenna 0.19 mm.

Described from 27 females, collected as follows:

Colorado: Denver, May 17, 1919, on *Leucocrinum montanum*, L. O. Jackson; 1 ♀ (*holotype*); No. 517.

Denver, May 2, 1919, sweepings, L. O. Jackson; 14 ♀; No. 519.

Grant, July 21, 1916, sweepings, L. O. Jackson; 1 ♀; No. 345.

Boulder (Flagstaff Mt.), June 28, 1924, L. O. Jackson; 3 ♀.

Nebraska: Lincoln, Oct. 9, 1893, on *Boutelona oligostachya*, H. G. Barber; 6 ♀.

Illinois: Havana, Aug. 8, 1908, sweeping grass, C. A. Hart; 2 ♀.

At first glance this species is suggestive of *C. manicatus* (Haldy), but is readily known by the more slender body; the narrower head, with the pair of prominent bristles in front of the

anterior ocellus near the eyes and the wide frontal costa; the relative lengths and widths of the first and second antennal segments and the form of the latter segment; and the long prothorax, with its heavy sculpture.

Chirothrips crenulatus new species. (Pl. XIV, Fig. 2.)

Female (macropterous).—Length about 1.1 mm. Color of head, thorax, legs, and antennæ, brown, except tarsi and apex of second antennal segment, which are yellow; pterothorax with reddish orange subhypodermal pigmentation; *abdomen reddish orange, decidedly paler than rest of body*, segment 9 at apex and all of 10 much darkened with black; fore wings brown, paler just beyond base, veins darkest; hind wings slightly darkened basally and along median line, remainder clear.

Head slightly longer than wide and 0.6 as long as prothorax, somewhat broadest across eyes, occiput smooth; cheeks straight and parallel, about one-sixth as long as head and one-third as long as eyes; *head distinctly produced in front of eyes, the distance from anterior margin of eyes to base of antennæ about one-half the length of cheeks, head in front of eyes about twice the length of cheeks*; interval between antennæ less than one-fourth the width of segment 1; *five or six pairs of stout, prominent bristles in front of ocellar triangle, the posterior pair opposite anterior ocellus*. Eyes half as long as head and 0.6 as wide as their interval. Ocelli subequal, the posterior pair distinctly more widely separated and opposite posterior margin of eyes. Antennæ about 1.7 times as long as head; segment 1 enlarged and swollen, about as long as 2 and with a distinct transverse carina; 2 inverted shoe-shaped, very much broader than long, with distinct sense cone on extreme apex of outer angle.

Prothorax about 1.33 times as wide as long, sides slightly concave anteriorly; *pronotum with the usual bristles stouter and more prominent than usual, surface smooth*; the two pairs of bristles at posterior angles short but distinct, brown. Pterothorax nearly 1.2 times as wide as prothorax; mesoscutum with a few separated scallop-like thickenings near cephalic margin; metascutum subreticulate, the posterior reticles with their mediad sides thickened; ventral surface with numerous stout bristles comparable with those on head; wings of fore pair about 17 times as long as width at middle, usually slightly curved; costa, anterior vein, and posterior vein with about 14, 8, and 4 bristles, respectively.

Abdomen broader than pterothorax, surface nearly smooth; *chitinous line near base of tergites broken up into numerous very minute scallops, there being nearly thirty on tergite 2*; sternite 1 with several transverse rows of scallops; segment 10 less than 1.2 times as long as basal width, not very sharply conical, divided above.

Measurements of holotype (♀): Length 1.13 mm.; head, length 0.112 mm., greatest width 0.107 mm., length in front of eyes 0.040 mm., length of cheeks 0.018 mm.; eyes, length 0.055 mm., width 0.028 mm., interval 0.048

mm.; prothorax, length 0.185 mm., width 0.246 mm.; pterothorax, width 0.287 mm.; fore wings, length 0.780 mm., width at middle 0.046 mm., at base 0.076 mm.; abdomen, width 0.309 mm.; segment 10, length 0.080 mm., width at base 0.069.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	26	27	30	30	22	34	9	9
Width (μ)	45	41	26	28	22	18	6	4

Total length of antenna 0.19 mm.

Described from four females, as listed below:

Colorado: Boulder (Flagstaff Mt.), June 28, 1924, L. O. Jackson; 1 ♀ (*holotype*).

Denver, June 21, 1918, sweeping, L. O. Jackson; 1 ♀.

“Colorado,” 1916, sweeping, L. O. Jackson; 1 ♀.

Nebraska: Lincoln, July 1, 1890, in room, Lawrence Bruner; 1 ♀.

Very close to *C. mexicanus*, but readily known by the characters italicized above.

Sericothrips pedicellatus new species. (Pl. XIV, Fig. 1.)

Female (macropterous).—Length about 1.0 mm. Color straw-yellow, with numerous brown markings; ocellar pigment bright red; prothoracic blotch not evident; pterothorax with a few obscure brown markings, of which a large pair on metascutum are most distinct; abdominal tergites 2–7 each with a narrow, transverse, nearly black line at base, margined behind with a brown band which occupies the basal half of tergites 2 and 7, and the basal fourth of 3–6; antennæ with segment 1 nearly colorless; 2 yellowish, lightly shaded with brownish; 3 paler than 2, nearly concolorous with 1, apex not darker; 4 blackish brown, paler apically and much paler basally; 5–8 blackish-brown, 5 slightly paler at base; legs concolorous with body, with coxæ distinctly, and femora very lightly, shaded with brown; fore wings lightly brownish, darkest just beyond the nearly white basal fifth, middle fifth paler, apical fifth nearly white; hind wings with the usual dark brown median streak.

Head of normal form, broadest across the eyes, surface distinctly and finely striate, particularly on occiput and on vertex, bristles as usual in the genus. Eyes prominent, protruding, pilose. *Antennæ decidedly slender, segment 3 being fully three times, segment 6 about 3.7 times, and segment 8 about 3.5 times, as long as wide; 1 unusually short, only slightly more than one-half as long as 2; 7 very briefly but distinctly pedicellate.* Mouth cone long, surpassing base of prosternum.

Prothorax of the usual form, and pronotum with the usual raised, anastomosing, transverse lines, which are somewhat more closely spaced just in front of and just behind the two major foveæ; bristle at posterior angles

colorless, a little more than one-third as long as pronotum. Forewings with about 22 bristles on costal margin and 3+16 on longitudinal vein; no additional bristles near tip of wing, in a series posterior to longitudinal vein. Legs not markedly long and slender.

Abdomen normal; pubescence not conspicuous, absent from median portion of basal tergites; bristles slender and colorless.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	20	36	55	46	45	52	10	14
Width (μ)	24	25	18	18	17	14	6	4

Total length of antenna, 0.28 mm.

Described from a unique female taken by the late Charles A. Hart at Makanda, Illinois, June 26, 1909, in sweepings from grass and weeds.

Structurally this is quite likely our most distinct American species, the pedicellate sixth antennal segment occurring nowhere else in the genus save in *gracilicornis* Williams, a quite different insect known only from England. The antennæ are remarkable, among the species described from north of the tropical life zone, for their slenderness.

Sericothrips variabilis (Beach).

1896. *Thrips variabilis* Beach, var. *d*, Proc. Iowa Acad. Sci., Vol. III, p. 220. Ames, Iowa, on smartweed and cucumber.

1902. *Sericothrips variabilis*, var. *d*, Hinds, Proc. U. S. Nat. Mus., Vol. XXVI, p. 143. Amherst, Mass., on grass.

Miss Beach described four varieties of her new species *Thrips variabilis*, and called them Vars. *a*, *b*, *c*, and *d*. I have seen and studied her types of varieties *a*, *b*, and *d*. The types of *c* are apparently missing, though there is in the lot a slide labeled "*Thrips variabilis* Beach. Var. *c*. ♂ and ♀ types. On cucumber, Ames, Iowa, July 28, 1894" bearing Hinds' label "*Sericothrips variabilis* (Beach). W. E. Hinds, Amherst, Mass., 1902." The specimens, however, as Dr. Hinds has previously noted,* fit her description of Var. *d*, instead of *c*; and, furthermore, the host plant (cucumber) and the date (July 28—1893 in the description, 1894 on the slide) correspond with those given for part of the material covered by her description of Var. *d*, and not at all with those for Var. *c*.

As it is almost certain that Miss Beach's so-called varieties represent distinct species, it is necessary to designate a single

* L. c., p. 145, footnote.

selected specimen of ultimate reference; and as Var. *d* is an easily recognized form, common and well distributed in Eastern United States, while the other varieties are rarer and not so easily recognized, I have preferred to associate the name *variabilis* with the specimens studied by Hinds, and have accordingly labeled the female and male types of Miss Beach's Var. *d* as the holotype and allotype, respectively, of the species.

Sericothrips variabilis (Beach), as at present restricted, is a dark colored species in which the abdomen is entirely bare of pubescence along the median dorsal line; the seventh to tenth segments of the abdomen dark blackish brown and abruptly darker than segment 6; the fore wings with three white bands, the first just beyond base, the second at middle, and the third at tip, and with two bristles near tip forming an additional series behind the longitudinal vein; the antennæ with segments 1 and 2 darker than 3; and the pronotal blotch *very* closely and finely transversely striate, the pronotum in front of the blotch with striæ which are much farther apart but which do not tend toward subreticulation.

The following material has been studied:

Iowa: Ames, July 28, 1894, on cucumber; 1 ♀, 1 ♂ (*holotype* and *allotype*, herein designated).

Illinois: Carbondale, June 14, 1907, sweeping, J. D. Hood; 1 ♀, 1 ♂.

Havana, Aug. 9, 1908, from willow, C. A. Hart; 3 ♀.

Muncie, May 16, 1909, from crabapple and in sweepings, C. A. Hart; 1 ♀, 1 ♂.

Pulaski, May 29, 1909, sweeping, C. A. Hart; 2 ♀, 2 ♂.

Maryland: Plummer's Island, April 20, 1913, on *Viburnum*, W. L. McAtee and J. D. Hood; 1 ♀.

Virginia: Tazewell, June 10, 1915, L. O. Jackson; 1 ♀.

***Sericothrips beachæ* new species.**

Female (macropterous).—Length about 0.8 mm. Color straw-yellow with numerous brown markings; prothoracic blotch not distinct, broken up into three transverse spots on either side, the anterior pair of spots largest and connected; ocellar pigment red; mesoscutum brown along anterior margin and at sides, metascutum with a pair of large brown spots; *abdominal tergites 2-7 each with a narrow, transverse, nearly black line at base, behind*

which, at each end, is a large, transverse brown spot; antennæ with segment 1 colorless; 2 brown, darkest at sides; 3 light grayish yellow, much paler than 2, apical third or fourth darkened, especially at sides; 4 light grayish yellow in basal half, dark grayish brown beyond; 5 pale brownish yellow in basal half, dark grayish brown in apical half, which is concolorous with 6-8; legs very pale yellow, with femora lightly shaded with brown on outer surface apically; fore wings with a gray cloud in third ninth, nearly white just basally to it, slightly grayish again at base, remainder of wing very light gray, paler at middle and at apex; color by reflected light yellow, with evident subhypodermal pigmentation in head and thorax, the brown markings more distinct, especially the pronotal blotch, ocellar pigment orange red.

Head broad, widest across eyes, cheeks straight and parallel, surface nearly free of sculpture, bristles as usual in the genus. Eyes prominent, protruding, pilose, about 0.63 as wide as their interval, which is very slightly greater than their length. Antennæ of the usual form, sixth segment not pedicellate. Mouth cone slightly surpassing posterior margin of prosternum.

Prothorax with the pronotum nearly 1.5 times as wide as long, of the usual form, the transverse anastomosing lines not closely spaced within the area of the pronotal blotch and hardly more widely spaced outside it; bristle at posterior angles pale gray, nearly half the median length of pronotum. Fore wings nearly twenty times as long as width at middle, which is about 0.52 the width just beyond scale; costal margin with about 24 bristles, longitudinal vein with 3+19, the distal one of these somewhat widely separated from the others; two additional bristles near tip of wing, in a series posterior to longitudinal vein. Legs not markedly long and slender.

Abdomen normal; pubescence distinct, dark, absent from median portion of basal tergites; bristles slender, yellowish, inconspicuous.

Measurements of holotype (♀): Length 0.813 mm.; head, length 0.084 mm., greatest width (across eyes) 0.139 mm., least width (at base) 0.130 mm.; eyes, length 0.058 mm., width 0.039 mm., interval 0.062 mm.; prothorax, median length of pronotum 0.120 mm., width 0.174 mm.; pterothorax, width 0.210 mm.; fore wings, length 0.668 mm., width at middle 0.034 mm., near base 0.065 mm.; abdomen, width 0.236 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	20	36	47	44	38	46	10	13
Width (μ)	25	26	21	20	18	16	7	5

Total length of antenna 0.25 mm.

Described from 16 females and 5 males, taken in catkins of the common hop, White Heath, Illinois, October 13, 1907, J. D. Hood. Named after Miss Alice M. Beach, the author of one of our earliest papers on North American Thysanoptera.

This is the species which I have for years considered *Sericothrips variabilis*, and of which I have distributed numerous specimens to the collections of Bagnall, Buffa, Crawford, Karny,

Schille, and others. It was excessively abundant at the time, and thousands of specimens might well have been taken. I have not seen it since.

The italicized characters define the species readily. It resembles in many ways *annulipes* (which has abdominal segments 7 and 8 blackish brown), *interruptus* (which has only *one* bristle in an additional series behind the longitudinal vein of the fore wing), and *apicalis* (which has no such additional wing bristles).

Sericothrips setosus new species.

Female (macropterous).—Length about 1.1 mm. Color orange-yellow, deepest in pterothorax, marked with brown blotches; ocellar pigment red; prothoracic blotch not evident, usually represented by a narrow, transverse brown line outlining its anterior margin, and a pair of rounded blotches (sometimes more or less broken up) behind; pterothorax with indistinct brown blotches, a moderately conspicuous pair on metascutum (best seen by reflected light) followed posteriorly by a pair of deep brown dashes;* abdominal tergites 2-7 each marked at base with a deep brown transverse line, behind which there is a brown band of varying width, usually broadest at sides; antennæ with segment 1 pale, remaining segments brown, nearly unicolorous, 2 sometimes darker and 3-5 indistinctly paler at middle; legs about concolorous with body, femora and tibiæ somewhat shaded with brown; fore wings very light brownish, indistinctly darker basally; hind wings with the usual dark median streak; *all bristles on body and appendages brown in color and quite conspicuous.*

Head about 1.8 times as broad as length in front of occipital line, widest across eyes, surface free of sculpture, bristles as usual in the genus. Eyes pilose, about 0.73 as wide as their interval, which is about equal to their length. Antennæ about 3.1 times the length of head in front of occipital line, segments formed as usual in the group, segment 6 not pedicellate. Mouth cone short, not nearly attaining base of prosternum.

Prothorax with the pronotum about 1.3 times as long as head in front of occipital line and 1.6 times as wide as long, of the usual form; pronotum with the usual raised, anastomosing, transverse lines very indistinct, not widely spaced outside the area usually occupied by the pronotal blotch nor very closely spaced within it; bristle at posterior angles dark brown and conspicuous. Fore wings about 20 times as long as width at middle, which is about 0.56 the width just beyond base; costal margin with about 25 bristles, longitudinal vein with about 3+17, of which the apical one is more widely separated than the others; one additional bristle near tip of wing, behind longitudinal vein. Legs normal, but *with conspicuous brown bristles.*

Abdomen normal; minute pubescence pale and almost invisible, even under the highest magnifications.

* These are internal and are probably apodemes.

Measurements of holotype (♀): Length 1.08 mm.; head, length to occipital line 0.084 mm., greatest width (across eyes) 0.152 mm., least width (at base) 0.134 mm.; eyes, length 0.064 mm., width 0.045 mm., interval 0.062 mm.; prothorax, median length of pronotum 0.113 mm., width 0.180 mm.; pterothorax, width 0.248 mm.; fore wings, length 0.720 mm., width at middle 0.036 mm., near base 0.064 mm.; abdomen, width 0.296 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	22	39	52	43	37	47	10	13
Width (μ)	24	27	18	18	17	16	7	5

Total length of antenna 0.26 mm.

Male (macropterous).—Length 0.85 mm. Very similar to female in most points of color and structure, but slenderer.

Described from ten females and one male, all taken by Bert R. Coad at Tucson, Arizona, April 24, 1914, on greasewood.

This species is no doubt closest to those which I have named *beachæ*, *interruptus*, and *apicalis*; but the coloration of the body and antennæ, and especially the conspicuous dark bristles on the body and its appendages, should serve for its ready recognition.

***Sericothrips interruptus* new species.**

Female (macropterous).—Length about 1.0 mm. Color straw-yellow, tinged with orange in pterothorax, and with numerous brown markings; ocellar pigment red, ocellar area darkened with brown; prothoracic blotch hardly visible by transmitted light, broken up into several small connected spots; mesoscutum lightly and indistinctly marked with brown at sides and along anterior margin; metascutum with a pair of large, vague, brown spots; abdominal tergites 2–7 each with a narrow, transverse, nearly black line at base, which is *broadly interrupted in the median third or fourth of tergites 2 and 7, and somewhat less distinct at the middle of 3–6*, bordered behind at either side of tergite with a brown spot; antennæ with segment 1 pale; 2 and 3 gray, the former shaded laterally and the latter distally with brownish or gray; 4–8 gray brown, 4 paler near base and narrowly nearly black at apex; legs nearly concolorous with body, femora apically and tibiæ at middle, somewhat shaded with brown; fore wings nearly uniform light brown, paler apically; hind wings with the usual dark median streak.

Head about twice as broad across eyes as length to the faint occipital line, not narrowed just behind eyes, cheeks not rounded, surface free of sculpture, bristles as usual in the genus. Eyes scarcely protruding, pilose, about 0.7 as wide as their interval, which is about equal to their length. Antennæ about 3.4 times as long as head in front of occipital line, segments formed as usual in the group, sixth not pedicellate. Mouth cone about attaining base of prosternum.

Prothorax with the pronotum about 1.5 times as long as head in front of occipital line and fully 1.5 times as wide as long, of the usual form; pronotum with the usual raised anastomosing transverse lines, which are about

equally spaced within and without the pronotal blotch; *bristle at posterior angles grayish, short, hardly one-third the length of pronotum.* Fore wings about 21 times as long as width at middle, which is about 0.53 the width just beyond base; costal margin with about 25 bristles, longitudinal vein with 3 + 20; *one additional bristle near tip of wing, behind longitudinal vein.* Legs normal, bristles barely visible.

Abdomen normal; pubescence distinct, especially in the brown spots, absent in median portion of basal tergites; bristles slender, pale, inconspicuous.

Measurements of holotype (♀): Length 0.97 mm.; head, length to occipital line 0.076 mm., greatest width (across eyes) 0.156 mm., least width (at base) 0.144 mm.; eyes, length 0.062 mm., width 0.045 mm., interval 0.065 mm.; prothorax, median length of pronotum 0.116 mm., width 0.182 mm.; pterothorax, width 0.245 mm.; fore wings, length 0.720 mm., width at middle 0.034 mm., width near base 0.064 mm.; abdomen, width 0.266 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	24	34	45	41	38	48	10	15
Width (μ)	25	26	19	18	18	16	7	5

Total length of antenna 0.26 mm.

Male (macropterous).—Length about 0.78 mm. Very similar to female in color and structure.

Described from two females taken by R. C. Shannon near Plummer's Island, Maryland, Jan. 10, 1915, hibernating in bird's nest; and from one male taken by the writer on Plummer's Island, Maryland, Oct. 5, 1913, on red oak.

The pale color, nearly uniform brownish wings, and the characters italicized in the above description should serve for the recognition of the species. It belongs near *setosus*.

Sericothrips apicalis new species.

Female (macropterous).—Length about 1.1 mm. Color uniform straw-yellow, with numerous brown markings; ocellar pigment red; prothoracic blotch broken up into several brown spots which are usually more or less connected, the concave front margin of the blotch well defined, particularly as seen by reflected light; mesoscutum brown along anterior margin and metascutum with a pair of large brown spots; abdominal tergites 2–7 each with a narrow, transverse, nearly black line at base, behind which, at each end, is a brown spot; antennæ with segment 1 nearly colorless; 2 yellowish, darkened with brown; 3 grayish yellow, extreme apex dark blackish brown; 4 grayish yellow in basal half, gray-brown beyond, apex dark blackish brown; 5 blackish brown in distal half and in pedicel, intervening portion yellowish gray; 6–8 blackish brown; legs concolorous with body, very lightly, if at all, shaded with brown; fore wings pale yellowish (nearly white), with a small, faint brownish spot beyond scale and another near base, opposite scale; hind wings with the usual dark median streak.

Head broad, about 1.7 times as wide as length in front of occipital line, broadest across eyes, surface nearly free of sculpture, bristles as usual in the genus. Eyes prominent, protruding, pilose, two-thirds as wide as their interval, which is about equal to their length. Antennæ about 3.3 times as long as head in front of occipital line, segments formed as usual in the group, sixth not pedicellate. Mouth cone about attaining base of prosternum.

Prothorax with the pronotum about 1.5 times as long as head in front of occipital line and nearly 1.5 times as wide as long, of the usual form; pronotum with the usual raised, anastomosing, transverse lines, which are very closely spaced in the area of the pronotal blotch and *only slightly more widely spaced outside it*; bristle at posterior angles grayish, short, about 0.4 as long as pronotum. Fore wings about 20 times as long as width at middle, which is about 0.53 the width just beyond base; costal margin with about 25 bristles, longitudinal vein with a basal group of 3 followed by about 19, the distal one of these somewhat widely separated from the others; *no additional bristles near tip of wing, in a series posterior to longitudinal vein*. Legs not markedly long and slender.

Abdomen normal; pubescence pale and indistinct, absent from median portion of basal tergites; bristles slender, yellowish, inconspicuous.

Measurements, principally of holotype (♀): Length 1.07 mm.; head, length to occipital line 0.088 mm., greatest width (across eyes) 0.154 mm., least width (at base) 0.130 mm.; eyes, length 0.063 mm., width 0.044 mm., interval 0.066 mm.; prothorax, length of pronotum along median line 0.130 mm., width 0.190 mm.; pterothorax, width 0.233 mm.; fore wings, length 0.720 mm., width at middle 0.036 mm., near base 0.068 mm.; abdomen, greatest width 0.306 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	24	40	55	50	47	51	10	13
Width (μ)	28	28	21	20	18	16	7	6

Total length of antenna 0.29 mm.

Described from five females taken by Mr. M. M. High on a nettle (*Stachys palustris*) at Knox (type locality) and Ober, Indiana, August 1 and July 16, 1914, respectively.

Structurally this species differs from *variabilis*, *annulipes*, and *beachæ* in lacking the two additional bristles which frequently occur in this genus near the tip of the wing, in a series posterior to the longitudinal vein. The specific name is in reference to this fact. In coloration it is most like *beachæ*, but in addition to the wing character just mentioned, it has a much more finely striated pronotal blotch than that species.

Sericothrips spiritus new species.

Female (macropterous).—Color uniform yellowish white, without markings on body, wings, or legs; antennæ colorless, excepting for a narrow brown

ring at extreme apex of segment 4 and a faint brown cloud in apical portion of 5 and 6; ocellar pigment very pale yellow.

Head broad, fully 1.9 times as wide as long, widest across eyes, narrowest just behind them, cheeks decidedly arched, surface without noticeable sculpture, bristles as usual in the genus. Eyes relatively small and widely separated, hardly 0.6 as wide as their interval, pilose. Antennæ about three times as long as head, segments as usual in this group of the genus. Mouth cone short, about attaining posterior margin of prosternum, not slenderly prolonged at tip.

Prothorax broad and heavy, about 1.6 times as long as head and 1.6 times as wide as long; pronotum with the usual, raised, anastomosing lines, which are closely spaced; bristle at posterior angles colorless and hardly half as long as pronotum. Fore wings with all bristles white and inconspicuous; costal margin with about 31 bristles; longitudinal vein with 3 + 20, the distal one more widely separated than the others; one additional bristle in a second series at tip of wing; hind wing with a median vein which is not darkened.

Abdomen stouter than usual, without color markings; pubescence white and almost invisible; all bristles slender, colorless, and very inconspicuous.

Measurements of holotype (♀): Length 1.13 mm.; head, length 0.084 mm., greatest width (across eyes) 0.162 mm., least width (just behind eyes) 0.149 mm.; eyes, length 0.064 mm., width 0.044 mm., interval 0.074 mm.; prothorax, median length of pronotum 0.132 mm., width 0.208 mm.; pterothorax, width 0.285 mm.; abdomen, greatest width 0.300 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)				48	42	48	11	14
Width (μ)	26	27	18	18	16	16	6	5

Total length of antenna 0.26 mm.

Described from one female taken at Tucson, Arizona, April 23, 1914, on cottonwood, by Bert R. Coad [Hood, No. 221].

In coloration this species is comparable only with *sambuci* and *albus*, agreeing with the former in the short and rather stout mouth cone, but differing from it in having the antennæ nearly clear white; the ocellar pigment very pale yellow; and the fore wings colorless, with bristles and fringes glass-clear and a single bristle near tip of wing, behind longitudinal vein.

Bagnalliella glaucæ new species. (Pl. XIII, Fig. 4.)

Female, forma macroptera.—Length about 1.7 mm. Color brownish yellow with head (especially anteriorly and at sides), usually the pterothorax, and always the last four or five abdominal segments, darkened with blackish brown, the tube paler at base and at apex; *subhypodermal pigmentation yellow or slightly orange-yellow by reflected light*, and (because of its partial opacity) *grayish yellow by transmitted light*; ocellar pigmentation bright red by reflected light, very deep purplish red by transmitted light;

antennæ bright lemon yellow, decidedly darkened with brown in segments 1 and 2 and with gray in at least the apical portion of segment 8; fore legs yellow, with femora blackish brown on outer surface; mid and hind legs brown, with tarsi and both ends of femora and tibiæ, yellow; fore wings brown to end of scale, thence nearly clear.

Head very large and broad, about 1.1 times as long as greatest width, broadest shortly behind eyes, sides broadly rounded and narrowed to base, which is about 0.86 the greatest width; vertex very slightly and roundly produced in front of eyes, slightly overhanging, the anterior ocellus not attaining frontal costa; dorsal and lateral surfaces almost perfectly smooth, bristles minute and almost invisible; postocular bristles short, hardly one-seventh as long as head, pointed, situated close to eyes and to sides of head. *Eyes very small, about as wide as long, hardly one-fourth as long as head, only 0.56 as wide as their interval. Ocelli of posterior pair widely separated, about 1.8 times as far apart as their distance from anterior ocellus.* Antennæ about 1.44 times as long as head, of normal form; sense cone formula: 3, 1-1; 4, 2-2; 5, 1-1+1; 6, 1-1+1; 7 with the usual one on dorsum near apex. Mouth cone short, about attaining middle of prosternum, labium semicircularly rounded at apex.

Prothorax across coxæ only 1.4 times as wide as head and about twice as broad as median length of pronotum, which is about 0.64 the length of head; surface without sculpture; midlateral and anterior marginal bristles exceedingly minute, anterior laterals pointed and shorter than postoculars, the two pairs at posterior angles longer and either blunt or slightly dilated at tip. Wings slightly narrowed at middle, without longitudinal vein, fore pair with about six accessory hairs and the subbasal bristles minute (one apparently lacking at times). Tarsal tooth minute. Abdomen slightly wider than pterothorax, without sculpture. Tube less than one-half as long as head and 1.6 times as long as basal width, which is fully twice the apical, sides straight. All abdominal bristles pointed, terminal bristles longer than tube.

Measurements of holotype (♀): Length 1.71 mm.; head, length 0.263 mm., greatest width 0.237 mm., width at base 0.203 mm.; eyes, length 0.062 mm., width 0.056 mm., interval 0.100 mm.; prothorax, length 0.168 mm., width across coxæ 0.330 mm.; pterothorax, width 0.360 mm.; abdomen, width 0.383 mm.; tube, length 0.122 mm., width at base 0.076 mm., width at apex 0.036 mm.

Antennal segments:	1	2	3	4	5	6	7	8
Length (μ)	40	52	48	50	52	52	52	34
Width (μ)	42	36	32	35	32	26	22	13

Total length of antenna, 0.38 mm.

Female, forma brachyptera.—Apparently identical with the macropterous form except that the pterothorax is very slightly narrower and usually paler and the eyes and ocelli are somewhat smaller.

Male (brachypterous).—Length about 1.5 mm. Color as in female, but prothorax and fore legs often somewhat enlarged, and tarsal tooth always longer and stronger.

Described from 28 females (of which 4 are macropterous) and 21 males (all brachypterous), as enumerated below:

Colorado: Boulder (type locality), July 2, 1924, on leaves of *Yucca glauca*, L. O. Jackson; 12 ♀, 10 ♂ (*holotype*, *allotype*, and *paratypes*).

Colorado Springs, Sept. 20, 1924, on leaves of *Yucca glauca*, L. O. Jackson; 16 ♀, 11 ♂ (*paratypes*).

Readily known from *yucca*, the only other species of the genus occurring in America, by the characters which have been italicized in the above description. The most conspicuous difference lies in the color of the subhypodermal pigmentation, which in *yucca* is bright red.

EXPLANATION OF PLATES

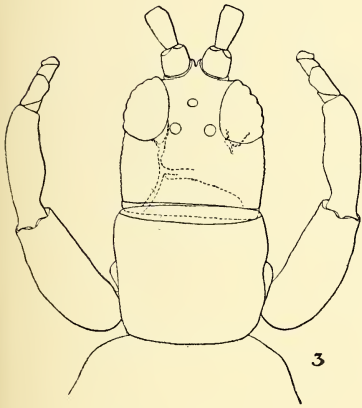
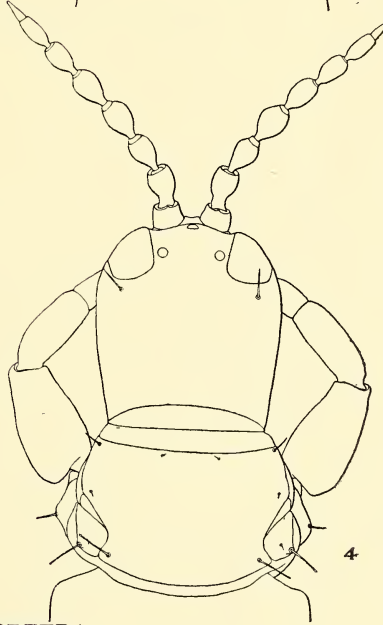
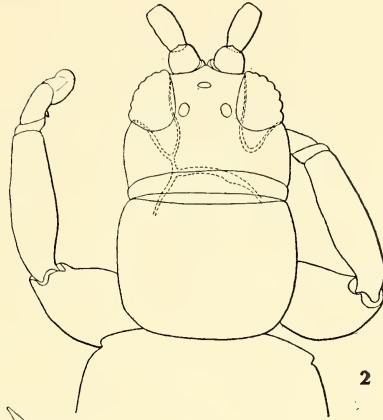
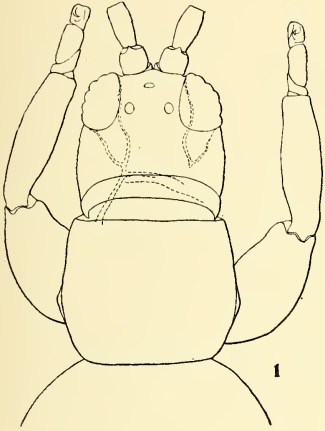
(Clara Husted, Inez D'Amanda, and J. D. H., del.)

PLATE XIII

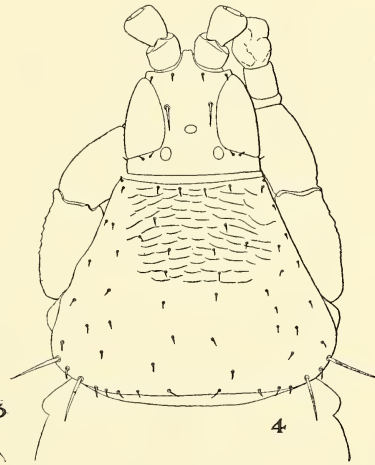
- FIG. 1.—*Æolothrips wetmorei* Hood, ♀, paratype, head and prothorax; all bristles omitted.
- FIG. 2.—*Æolothrips vehemens* Hood, ♀, paratype, head and prothorax; all bristles omitted.
- FIG. 3.—*Æolothrips oculatus* Hood, ♀, holotype, head and prothorax; all bristles omitted.
- FIG. 4.—*Bagnalliella glaucæ* Hood, ♀, holotype, head and prothorax; all minor bristles omitted.

PLATE XIV

- FIG. 1.—*Sericothrips pedicellatus* Hood, ♀, holotype, left antenna; all sense cones and bristles omitted.
- FIG. 2.—*Chirothrips crenulatus* Hood, ♀, holotype, head and prothorax; all bristles on appendages omitted.
- FIG. 3.—*Chirothrips productus* Hood, ♀, holotype, head and prothorax; all bristles on appendages omitted.
- FIG. 4.—*Chirothrips simplex* Hood, ♀, paratype, head and prothorax, showing sculpture of a portion only of pronotum; all bristles on appendages omitted.



THYSANOPTERA



THYSANOPTERA